REMARKS/ARGUMENTS

Claims 1-56 are pending. No claims are amended, added, or canceled. In view of the following arguments, withdrawal of all outstanding rejections and allowance of the pending claims are respectfully requested.

Drawing Rejections Under 37 CFR 1.83(a)

The drawings are objected to under 37 CFR 1.83(a) as not showing every feature of the claimed invention. This rejection is traversed.

The Office Action ("Action") asserts at page 2 that the features of a "statistical bigram correlation model", a "bigram frequency", and a "unigram frequency" are not represented in the drawings. Applicant respectfully disagrees. Firstly, with respect to a "statistical bigram correlation model", Figs. 1 through 5 clearly show respective system, apparatus, and operations of the claimed "model" for "statistical bigram correlation" (i.e., a "statistical bigram correlation model") "for image retrieval", as Applicant claims. Such systems, apparatus, and operations depicted in Figs. 1-5 are clearly showing the claimed "statistical bigram correlation model". Additionally, program data 108 of Fig. 2 clearly illustrates exemplary "bigram frequency" ("Bigram Freqs") and "unigram frequency" ("Unigram Freqs") features, as Applicant claims. Thus, the claimed features of a "statistical bigram correlation model", "bigram frequency", and "unigram frequency" are clearly shown in the drawings.

Accordingly, the 37 CFR 1.83(a) rejections to the drawings are improper and should be withdrawn.

Claim Rejections under 35 USC §112

Claims 1, 15, 29, and 43 stand rejected under 35 USC §112, second paragraph as being indefinite for failing to particularly point out and claim the subject matter of the invention. This rejection is traversed.

In addressing claims 1, 15, 29, and 43, the Action asserts that "[i]t is not clear how 'the statistical bigram correlation model' has been applied in the image retrieval method. Applicant respectfully disagrees.

Claim 1 recites the following feature in the preamble: "[a] method for image retrieval using a statistical bigram correlation model, the method comprising". The body of claim 1 recites the gerunds or operations of the claimed method. More particularly, "receiving a plurality of images responsive to multiple search sessions", "determining whether the images are semantically relevant images via relevance feedback", and "estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency being based on multiple search sessions in which each image of the pair is indicated to be a semantically relevant image." Each of the claimed operations associated with the operations of "receiving", "determining", and "estimating" particularly point out and claim "[a] method for image retrieval using a statistical bigram correlation model", as recited in the preamble of claim 1.

For example, "receiving a plurality of images responsive to multiple search sessions" is clearly responsive to operations of "image retrieval". Also, see block 304 of Fig. 2, which performs feature-based image search / retrieval. In another example, a "bigram frequency being based on multiple search sessions" clearly applies to the claimed "method for image retrieval", since "a plurality of images"

are received "responsive to multiple search sessions". A "bigram frequency" that is based on "search sessions" that result in receipt of "a plurality of images" particularly points out and claims "[a] method for image retrieval using a statistical bigram correlation model", as recited in the preamble of claim 1. Thus, claims 1 particularly points out and claims the subject matter which Applicant regards as the invention.

Accordingly, the 35 USC §112, second paragraph rejection of claim 1 is improper and should be withdrawn.

For the reasons provided above with respect to claim 1, **claims 15, 29, and 43** also particularly point out and claim how 'the statistical bigram correlation model' is applied in image retrieval. Accordingly, Applicant trusts that the 35 USC §112 rejections to claims 15, 29, and 43 will be withdrawn.

Claims 2-14, 16-28, 30-42, and 44-56 depend from respective ones of claims 1, 15, 29, and 43. Since these claims were rejected based on their dependencies to rejected based claims, these claims also particularly point out and claim how 'the statistical bigram correlation model' is applied in image retrieval for at least the reasons already discussed above.

Accordingly, the 35 USC §112 rejection to claims 2-14, 16-28, 30-42, and 44-56 is improper and should be withdrawn.

Claim Rejections Under 35 USC §103

Claims 1, 3, 8, 15, 17, 22, 29, 31, 36, 43, 45, and 50 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent no. 6,347,313 to Ma et al ("*Ma*") in view of U.S. Patent no. 6,175,829 to Li et al ("*Li*"). This rejection is traversed.

Claim 1 recites "receiving a plurality of images responsive to multiple search sessions", "determining whether the images are semantically relevant images via relevance feedback", and "estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency being based on multiple search sessions in which each image of the pair is indicated to be a semantically relevant image." The cited combination does not teach or suggest these features for the following reasons.

In addressing claim 1, page 4 of the Action admits that *Ma* does not explicitly teach "estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency being based on multiple search sessions in which each image of the pair is indicated to be a semantically relevant image", as claim 1 recites. Applicant agrees, and further submits that *Ma* not only does not teach these claimed features, but *Ma* also does not suggest them. Instead, *Ma* relates images as a function of user feedback and by application of a similarity threshold over multiple retrieval sessions (e.g., see *Ma* at col. 3, lines 42-62). (*Ma's* similarity threshold is based on feature space distance between two clusters). *Ma* is completely silent with respect to use of a "frequency" of any kind to "estimating semantic correlations", as claim 1 recites.

To locate these features that the Action admits as being missing from *Ma*, the Action combines *Ma* with *Li*. The Action points out that *Li* teaches the occurrence or frequency of query criteria in a database to estimate a maximum and minimum number of matches for a given query image to determine similarity across images. In view of this teaching, the Action concludes that it would have been obvious for a person of ordinary skill in the art to combine *Ma* in view of *Li* to arrive at the features of claim 1. Applicant respectfully submits that this conclusion is unsupportable.

Claim 1 recites "estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency being based on multiple search sessions in which each image of the pair is indicated to be a semantically relevant image." The specification at page 13, lines 1-2, clearly describes "a bigram frequency": "[t]he number of search sessions in which two images are jointly labeled as relevant is referred to as *bigram frequency*." Nowhere does *Li* teach or suggest use of such a "bigram frequency". Nowhere does *Li* teach or suggest tabulating "[t]he number of search sessions in which two images are jointly labeled as relevant" to obtain "a respective bigram frequency", which is used to determine "a respective semantic correlation between each of at least one pair of the images", as claim 1 recites.

It is respectfully submitted that *Li* merely teaches how to re-write a search query by estimating a maximum and minimum number of database matches for a given query. More particularly, at col. 11, lines 15-55, *Li* teaches that the minimum and maximum database match estimations are based on an assumption that resulting images "will correspond to one and only one shape-color pair in the image". That is, *Li* uses image color and shape a qualitative weighting scheme to

calculate image similarity. These estimates are then used to rewrite a search query for search optimization. Nowhere do these operations to rewrite a search query teach or suggest "a bigram frequency", as claim 1 recites. A "bigram frequency" is "[t]he number of search sessions in which two images are jointly labeled as relevant", as indicated by Applicant's specification at page 13, lines 1-2. Thus, a system of *Ma* in view of *Li* may never "estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency", as Applicant claims.

Accordingly, and for at least this reason, the 35 USC §103(a) rejection of claim 1 is improper and should be withdrawn.

Claims 3 and 8 depend from claim 1 and are allowable over *Ma* in view of *Li* at least by virtue of this dependency. Accordingly, the 35 USC §103(a) rejection of claims 3 and 8 is improper and should be withdrawn.

Moreover, claims 3 and 8 include additional features that are not taught or suggest by the cited combination of references. For example, claim 3 recites "dynamically updating the respective bigram frequency corresponding to two of the images." In addressing these features, the Action points to *Li* col. 1, lines 50-60, and col. 14, lines 25-35. For the reasons already discussed above, and for the following reasons, Applicant respectfully submits that these cited portions of *Li* are completely silent with respect to the claimed "bigram frequency".

First, let take a look at the cited portion of *Li,* col. 1, lines 50-60, which teach:

> *"Query By Image Content (QBIC), developed at the International Business Machines Corporation (IBM), is another system that supports image retrieval using visual examples. See Flickner et al., "Query by Image and Video Content: The QBIC System," IEEE*

> *Computer, 28(9):23-32, September 1995. Virage and QBIC both support image matching and keyword-based retrieval functionality on the whole image level. However, neither of them provides semantics-based access to objects in images. Another problem with both the QBIC system and the Virage system relates to reformulation granularity"*

This cited portion of Li merely touches on background of visual and keyword-based image retrieval, and identifies problems such as a lack of semantics-based access to objects in images as well as the problem of reformulation granularity image. Clearly this cited portion does not teach or suggest "dynamically updating the respective bigram frequency corresponding to two of the images", as claim 3 recites.

Now, lets take a look at *Li*, col. 15, lines 25-35, which was also cited as teaching the features of claim 3:

> *"Based upon the above formula, the system calculates and provides users with the feedback on the expected, maximum and minimum numbers of matching images as 4.65, 18 and 0, respectively. To calculate the minimum number of matching images for databases with images containing more than two objects, where the query is associated with M objects and M conditions, the minimum number of matching images is computed as follows:"*

It is respectfully submitted that this cited portion that describes calculating and providing users with expected, minimum, and maximum numbers of matching images does not teach or suggest a "number of search sessions in which two images are jointly labeled as relevant", which is "referred to as *bigram frequency*" (please see, Applicant's specification at page 13, lines 1-2). Thus, a system of *Ma* in view of *Li* may never "dynamically updating the respective bigram frequency corresponding to two of the images", as claim 3 recites.

Accordingly, and for these additional reasons, the 35 USC §103(a) rejection of claim 3 should be withdrawn.

In another example, claim 8 recites "a respective semantic support based on a similarity measure and/or the respective semantic correlation, the similarity measure corresponding to a similarity of a respective feature vector of the image and a search query corresponding to the session." In addressing this feature, the Action asserts that this feature is taught by *Ma* at col. 5, lines 25-35. Applicant respectfully disagrees.

Referring to the cited portion of *Ma*, *Ma* at col. 5, lines 25-35, teaches:

> *"when a user-generated query object is received by the object retrieval system, it is processed as if it were a database object most recently added to the database 10 of FIG. 1 . In other words, feature vectors are calculated for the query object and the query object is mapped onto the feature space. Database objects are selected from the cluster which has a centroid closest to the query object and the selected database objects are displayed at the user computer 18 . The user determines which of the displayed database objects are relevant to the query object and the information is communicated to the updating mechanism 16."*

It is respectfully submitted that calculating feature vectors for a query object and mapping the query object in to query space for presenting to a user for similarity feedback does not teach or suggest the feature of claim 8.

More particularly, an exemplary illustration of the "semantic correlation", as Applicant claims, is described at page 13, line 21 through page 14 line 6 of the specification. This portion of the specification is shown immediately below and is illustrative of the contrast between anything that *Ma* teaches and the claimed subject matter.

> *"[T]he semantic correlation R between two images I and J can be determined as follows:*

- $0 \leq R(I,J) \leq 1$ *(attributes);*
- $R(I,J) = R(J,I)$ *(attributes);*
- *if* $I=J$ *and* $U(I) \leq 0$: $R(I,J) = 0$ *(attributes);*
- *if* $I \neq J$ *and* $B(I,J) \leq 0$: $R(I,J) = 0$ *(attributes);*
- *if* $I=J$ *and* $U(I) > 0$: $R(I,J)=U(I)/T$ *(self correlation); or*
- *if* $I \neq J$ *and* $B(I,J) > 0$: $R(I,J)=B(I)/T$ *(mutual correlation);*

where I, J *are two images,* $B(I,J)$ *is their bigram frequency,* $U(I)$ *is the unigram frequency of image* I, T *is the maximum frequency,* $R(I,J)$ *is the correlation between image I and J."*

Referring to the features of claim 8, and the above cited portion of the specification, for the reasons already discussed above with respect to claim 1, *Ma* does not teach or suggest a "bigram frequency". Moreover, *Ma* is completely silent with respect to any teaching or suggestion of "self" or "mutual correlation". For at least these reasons, a system of *Ma* in view of *Li* may never generate "a respective semantic support based on a similarity measure and/or the respective semantic correlation, the similarity measure corresponding to a similarity of a respective feature vector of the image and a search query corresponding to the session" , as claim 8 recites.

Accordingly, and for this additional reason, the 35 USC §103(a) rejection of claim 8 is improper and should be withdrawn.

Claim 15 recites "receiving a plurality of images responsive to multiple search sessions", "determining whether the images are semantically relevant images via relevance feedback", and "estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency representing a probability of whether two of the images are semantically related to one-another based on a co-

occurrence frequency that each image of the two images was relevant in a previous query/feedback session." For the reasons already discussed, *Ma* in view of *Li* does not teach or suggest these recited features.

Accordingly, the 35 USC §103(a) rejection of claim 15 is improper and should be withdrawn

Claims 17 and 22 depend from claim 15 and are allowable over the cited combination at least by virtue of this dependency. Moreover, these claims include additional features that are not taught or suggested singly or in combination by the reference of record for the reasons already discussed above.

Accordingly, for each of these reasons, the 35 USC §103(a) rejections of claims 17 and 22 are improper and should be withdrawn.

Claim 29 recites "receiving a plurality of images responsive to multiple search sessions", "determining whether the images are semantically relevant images via relevance feedback", and "estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency being based on multiple search sessions in which each image of the pair is indicated to be a semantically relevant image." For the reasons discussed above with respect to claim 1, *Ma* in view of *Li* does not teach or suggest these recited features.

Accordingly, the 35 USC §103(a) rejection of claim 29 is improper and should be withdrawn

Claims 31 and 36 depend from claim 29 and are allowable over the cited combination at least by virtue of this dependency. Moreover, for the reasons already discussed above, these claims include additional features that are not taught or suggested by the reference of record—singly or in combination.

Accordingly, for each of these reasons, the 35 USC §103(a) rejections of claims 31 and 36 are improper and should be withdrawn.

Claim 43 recites "processing means for: receiving a plurality of images responsive to multiple search sessions", "determining whether the images are semantically relevant images via relevance feedback", and "estimating a respective semantic correlation between each of at least one pair of the images with a respective bigram frequency, each respective bigram frequency being based on multiple search sessions in which each image of the pair is indicated to be a semantically relevant image." For the reasons discussed above with respect to claim 1, *Ma* in view of *Li* does not teach or suggest these recited features.

Accordingly, the 35 USC §103(a) rejection of claim 43 is improper and should be withdrawn

Claims 45 and 50 depend from claim 43 and are allowable over the cited combination at least by virtue of this dependency. Moreover, for the reasons already discussed above, these claims include additional features that are not taught or suggested by *Ma* in view of *Li*.

Accordingly, for each of these reasons, the 35 USC §103(a) rejections of claims 45 and 50 are improper and should be withdrawn.

Claims 4, 18, 32, and 46 stand rejected under 35 USC §103(a) over *Ma* in view of *Li* and further in view of Huang et al -- "Combined Supervised Learning with Color Correlograms for Content-Based Image Retrieval", 1997 ("*Huang*"). This rejection is traversed.

Claims 4, 18, 32, and 46 respectively depend from base claims 1, 15, 29, and 43. For the reasons already discussed, *Ma* in view of *Li* do not teach or

suggest the features of these respective base claims. *Ma* in view of *Li* and further in view of *Huang* does not cure this deficiency for the following reasons. *Huang* teaches "two schemes that use feedback information (in the form of labeled examples). The first scheme is based on the spatial locality of feature vectors corresponding to similar images. Learning is affected by modifying the query vector to incorporate the positive examples. The second scheme is based on distortion of the feature space. By using a weighted metric, it is possible to selectively enhance (resp. suppress) the role of appropriate dimensions to retrieve images of the kind termed positive (resp. negative)." (see the last paragraph of *Huang* on page 1). Notice that Huang is completely silent with respect to the use of "a bigram" as claims 1, 15, 29, and 43 recite. Thus a system of *Ma* in view of *Li* and further in view of *Huang* do not teach of suggest the features of base claims 1, 15, 29, and 43. For at least this reason, *Ma* in view of *Li* and further in view of *Huang* do not teach of suggest the features of claims 4, 18, 32, and 46, which depend from these allowable base claims.

Moreover, claims 4, 18, 32, and 46 include additional features that are not taught or suggest by the cited combination. For example, claim 4 recites "wherein the respective semantic correlation is: (a) a positive correlation between two semantically relevant images; (b) a negative correlation between a semantically relevant image and a semantically irrelevant image; and (c) no correlation otherwise." In addressing this feature, the Action points to *Huang*, page 1, col. 2, lines 20-28, and page 2, col. 2, lines 30-50. The Action concludes that it would have been obvious to apply *Huang's* teachings of positive images to *Mojsilovic* and *Zhu* to incorporate feedback information to enhance the quality of image

retrieval using correlograms. This conclusion is unsupportable at least for the following reasons.

As a preliminary matter, the Action has not provided a statutory rejection of claim 4 over *Huang* in view of *Mojsilovic* and further in view of *Zhu*. Rather, the Action has rejected claim 4 over *Ma* in view of *Li* and further in view of *Huang*. If the Office desires to reject the claims over *Huang* in view of *Mojsilovic* and further in view of *Zhu*, the Office must particularly point out those portions of the combination that teach or suggest the claimed subject matter.

Referring to the Action's rejection of claim 4 in view of *Ma* in view of *Li* and further in view of *Huang*, Applicant's specification at page 13, line 16, through page 14, line 6 clearly describes "a positive correlation between two semantically relevant images" as claim 4 recites. In particular:

> *"there is a positive correlation between two relevant images, and a negative correlation between a relevant image and an irrelevant image, but no correlation otherwise. In case that the value of a bigram or unigram frequency is less than zero, the corresponding correlation value is set to zero.*
>
> *For instance, the semantic correlation R between two images I and J can be determined as follows:*
>
> - $0 \le R(I,J) \le 1$ *(attributes);*
> - $R(I,J) = R(J,I)$ *(attributes);*
> - *if* $I = J$ *and* $U(I) \le 0$: $R(I,J) = 0$ *(attributes);*
> - *if* $I \ne J$ *and* $B(I,J) \le 0$: $R(I,J) = 0$ *(attributes);*
> - *if* $I = J$ *and* $U(I) > 0$: $R(I,J) = U(I)/T$ *(self correlation); or*
> - *if* $I \ne J$ *and* $B(I,J) > 0$: $R(I,J) = B(I)/T$ *(mutual correlation)[;]*

where I, J are two images, $B(I, J)$ is their bigram frequency, $U(I)$ is the unigram frequency of image I, T is the maximum frequency, $R(I, J)$ is the correlation between image I and J."

Huang is completely silent with respect to any teaching or suggestion of such a "positive correlation". For at least these reasons, a system of *Ma* in view of *Li* and further in view of *Huang* may never include "the respective semantic correlation is: (a) a positive correlation between two semantically relevant images; (b) a negative correlation between a semantically relevant image and a semantically irrelevant image; and (c) no correlation otherwise", as claim 4 recites.

Accordingly, and for this additional reason, the 35 USC §103(a) rejection of claim 4 over *Ma* in view of *Li* and further in view of *Huang* is improper and should be withdrawn.

Claims 18, 32, and 46 also include the feature of "a positive correlation". For the reasons discussed above with respect to claim 4, the cited combination of *Ma* in view of *Li* and further in view of *Huang* does not teach or suggest these recited features.

Accordingly, and for this additional reason, the 35 USC §103(a) rejection of claims 18, 32, and 46 should be withdrawn.

Claims 2, 9, 16, 23, 30, 37, 44 and 51 stand rejected under 35 USC § 103(a) has been unpatentable over Ma in view of Li and further in view of U.S. patent publication no. 2003/0123737 to Mojsilovic. This rejection is traversed.

Firstly, **claims 2, 9, 16, 23, 30, 37, 44, and 51** respectively depend from base claims 1, 15, 29, and 43. For the reasons already discussed, *Ma* in view of *Li* do not teach or suggest the features of these respective base claims. The new

combination of *Ma* in view of *Li* and further in view of *Mojsilovic* does not cure this deficiency for the following reasons.

Claims 1, 15, 29, and 43 respectively recite "a bigram frequency". The specification at page 13, lines 1-2, clearly describes: "[t]he number of search sessions in which two images are jointly labeled as relevant is referred to as *bigram frequency*." Nowhere does *Mojsilovic* teach or suggest use of such a "bigram frequency". Rather, referring to the Abstract of *Mojsilovic*, *Mojsilovic* teaches "deriving a set of perceptual semantic categories for representing important semantic cues in the human perception of images, wherein each semantic category is modeled through a combination of perceptual features that define the semantics of that category and that discriminate that category from other categories, and for each semantic category, forming a set of the perceptual features as a complete feature set CFS."

Mojsilovic further teaches that perceptual features are derived through subjective experiments performed with human observers (see, Abstract). Perceptual features are then extracted from an input image. The extracted perceptual features are assigned to a particular semantic category for that image based on a perceptually-based metric, which is based on the derived perceptual features. Thus, a system of *Ma* in view of *Li* and further in view of *Mojsilovic* may never determine "a bigram frequency", as Applicant claims. For this reason alone, a system of *Ma* in view of *Li* and further in view of *Mojsilovic* do not teach of suggest the features of these base claims 1, 15, 29, and 43 from which rejected depending claims 2, 16, 30, and 44 respectively depend.

Accordingly, and at least for this reason, the 35 USC §103(a) rejections of claims 2, 9, 16, 23, 30, 37, 44, and 51 are improper and should be withdrawn.

Moreover, claims 2, 9, 16, 23, 30, 37, 44, and 51 include additional features that are not taught or suggested by the cited combination of *Ma* in view of *Li* and further in view of *Mojsilovic*. In addressing claims 2, 16, 30, and 44, the Action at page 6 admits that Ma in view of Li does not teach or suggest "assign a respective ranking score to each of the images based at least in part on the respective semantic correlation corresponding to the image and display and only those images with a highest range of ranking scores." Applicant agrees with this assessment of Ma in view of Li.

For example, claim 2 recites in part: "assigning a respective ranking score to each of the images based at least in part on the respective semantic correlation corresponding to the image". In addressing claim 2 at page 6, the Action points to the teaching at lines 1-10 in the right column of page 4 of *Mojsilovic* to conclude that this recited feature is obvious in view of the cited combination. Applicant respectfully disagrees.

Mojsilovic, in the right column of page 4, lines 1-10, teaches:

> *"the computed values and displays N images on the user display device 105B. The displayed N images are those selected by the data processing system 100 to be the most similar to the query image, i.e., the N images with the highest computed similarity score. Alternatively, if desired for some reason the user could request the data processing system 100 to display N images that are the most dissimilar to the query image, i.e., the N images with the lowest computed similarity score. The maximum value that N may attain may be unconstrained, or it may be constrained by the user to some reasonable number (e.g., four, eight or ten)"*

It is respectfully submitted that this teaching is completely silent on the recited features of claim 2. Applicant's specification at page 13, line 21 through page 14 line 6 present an exemplary "semantic correlation". In contrast to presenting

similar or dissimilar images on a user display device as taught by *Mojsilovic*, Applicant's specification as already described in detail above clearly points out that:

> *"the semantic correlation R between two images I and J can be determined as follows:*
>
> - $0 \le R(I,J) \le 1$ *(attributes);*
> - $R(I,J) = R(J,I)$ *(attributes);*
> - *if* $I=J$ *and* $U(I) \le 0$: $R(I,J) = 0$ *(attributes);*
> - *if* $I \ne J$ *and* $B(I,J) \le 0$: $R(I,J) = 0$ *(attributes);*
> - *if* $I=J$ *and* $U(I) > 0$: $R(I,J) = U(I)/T$ *(self correlation); or*
> - *if* $I \ne J$ *and* $B(I,J) > 0$: $R(I,J) = B(I)/T$ *(mutual correlation)[;]*
>
> *where* I, J *are two images,* $B(I,J)$ *is their bigram frequency,* $U(I)$ *is the unigram frequency of image* I, T *is the maximum frequency,* $R(I,J)$ *is the correlation between image I and J."*

Thus, a system based on *Ma* in view of *Li* and further in view of *Mojsilovic*, which teaches presenting similar or dissimilar images on a display device, may never "assigning a respective ranking score to each of the images based at least in part on the respective semantic correlation corresponding to the image", as claim 2 recites.

Accordingly, and for this additional reason, the 35 USC §103(a) rejection of claim 2 is improper and should be withdrawn.

Claims 16, 30, and 44 also recite the feature "assigning a respective ranking score to each of the images based at least in part on the respective semantic correlation corresponding to the image". For the additional reasons described above with respect to claim 2, the cited combination does not teach or suggest the features of claims 16, 30, and 44.

Accordingly, and for these additional reasons, the 35 USC §103(a) rejection of claims 16, 30, and 44 should be withdrawn.

In addressing claims 9, 23, 37 and 51, the Action at page 7 asserts that *Ma* teaches "identifying, for each image obtained responsive to one or more search sessions of the multiple search sessions, a respective semantic support based on a similarity measure and/or the respective semantic correlation, the similarity measure corresponding to a similarity of a respective feature vector of the image and a search query corresponding to the session." Applicant respectfully disagrees for the reasons already discussed above.

Additionally, in addressing claims 9, 23, 37, and 51, the Action at page 7 admits that *Ma* does not teach "assigning a respective ranking score to each of the images based upon the respective similarity measure, the respective semantic support, and a semantic weight". To supply this missing feature, the Action points to *Mojsilovic,* lines 1-10 in the right column of page 4, to conclude that this recited feature is obvious in view of the cited combination of *Ma* in view of *Li* and further in view of *Mojsilovic*. This conclusion is unsupportable for the reasons already discussed above with respect to claim 2.

Accordingly, and for these additional reasons, the 35 USC §103(a) rejection of claims 9, 23, 37, and 51 is improper and should be withdrawn.

Conclusion

Pending claims 1-56 are in condition for allowance and action to that end is respectfully requested. Should any issue remain that prevents allowance of the application, the Office is encouraged to contact the undersigned prior or issuance of a subsequent Office action.

Respectfully Submitted,

Dated: 9/21/04 By: Brian Hart

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